

Suffolk Growth Partnership

Technical Skills Legacy
Report 2022





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National and Regional Context



The National Context 1

Nationally-Significant Infrastructure Projects (NSIPs)

- **270** UK projects in the next nine years (2022-2030) – all in the planning process and qualified as Nationally-Significant Infrastructure Projects.
- **£650bn** in potential spend nationally through 2030 (*).
- **£87bn** to be spent on 70 already-approved large scale energy infrastructure projects 2022-30 – nuclear/solar/wind/interconnectors/pipelines/ gas storage/tidal/biomass/etc. Post 2024 planned energy investment is over £150bn.
- **39** already approved transport projects including bridges/freight interchanges/rail/motorway and trunk roads/and at least one port outside Norfolk and Suffolk (Tilbury 2).

(*)

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1016759/Analysis_of_the_National_Infrastructure_and_Construction_Pipeline_2021.pdf

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The National Context 2

Ambitious plans, limited human resources

- UK government approach is for future which centres on high tech, high value, high margin, high skill businesses.
- Strategy is being implemented in space, net zero aviation, urban transport, renewable power, nuclear energy, cyber-security, quantum computing, advanced manufacturing, and several more areas.
- Around 270 large scale infrastructure projects are planned for the period 2022-2030 of which half are already approved (see next slide).
- Competition for highly-skilled people is already extremely severe and projects outside Norfolk and Suffolk will definitely be going ahead.
- The need for highly skilled local people is, therefore, doubly urgent.

Suffolk & Norfolk Infrastructure Project Metrics (2022-2037)

- **220+ projects**
- **Over £70bn at current prices**
- **Top 20 projects by value worth £60bn**
- **Top 20 projects c 85% of total spend**
- **Top 50 projects by value worth c£67bn**
- **Top 50 projects c 95% of total spend**

The above relates to all NSIPs planned for Norfolk and Suffolk plus large projects planned locally.

Main Types of Infrastructure Project

Bridges
Electricity Sub-Stations
Network Reinforcement
Houses (Public)
Infrastructure
Motorways & Trunk Roads
Power Stations & Conversions (gas)
Nuclear energy
Railway Track/Works
Renewable Energy (wind/solar)
Sea Defence/Flood Protection
Shipping Terminals/Ports
Utilities (gas, electricity, water infrastructure)

Main Projects by Type

(*): Bradwell B (estimated at between £10bn and £20bn) is located in Essex very close to the Suffolk border. It is not included in these figures but is another very large potential NSIP that will utilise very similar skillsets to those under consideration for the Technical Skills Legacy.

Planned Projects by Type	Estimated Total Value (£bn)
Nuclear (*)	20.0
Offshore Wind	21.7
Residential (Public/Private)	12.1
Rail	4.7
Highways	2.7
Energy Infrastructure	4.1
Water	2.9
Port Expansion	0.4
Other/Miscellaneous	1.0
	69.6





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Norfolk and Suffolk Workforce



Workforce

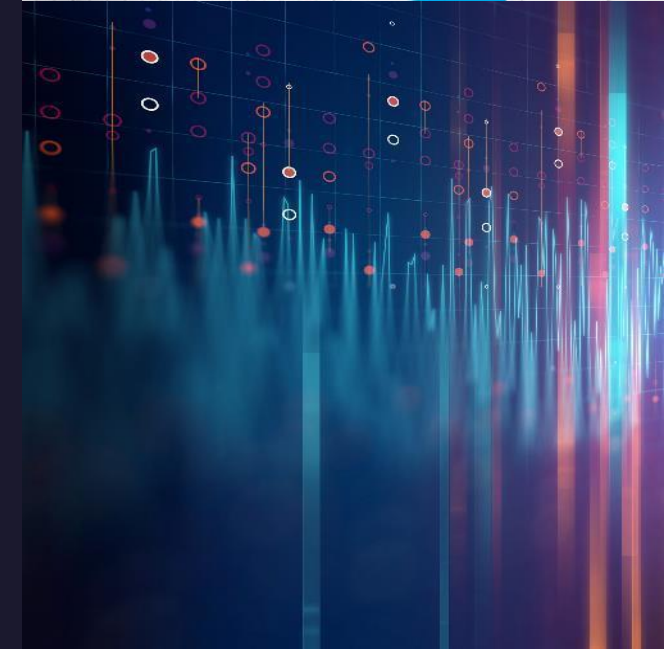
The research has focused on the 14 job roles (SOC codes) identified for the 2019 work as key to ensuring a legacy of technical skills. For final analysis purposes the job roles were expanded by another SOC Code (213) making 15 in all in the 2022 update. The fourteen roles used for comparative purposes contain:

113,000 people in the defined technical workforce in Norfolk and Suffolk

20,000 people in the higher professional and technical job roles.

28,000 (25%) are road transport drivers.

Compared with the larger East of England region, Norfolk and Suffolk have lower proportions of the higher professional and technical job roles but generally higher proportions of the skilled and operative grades.

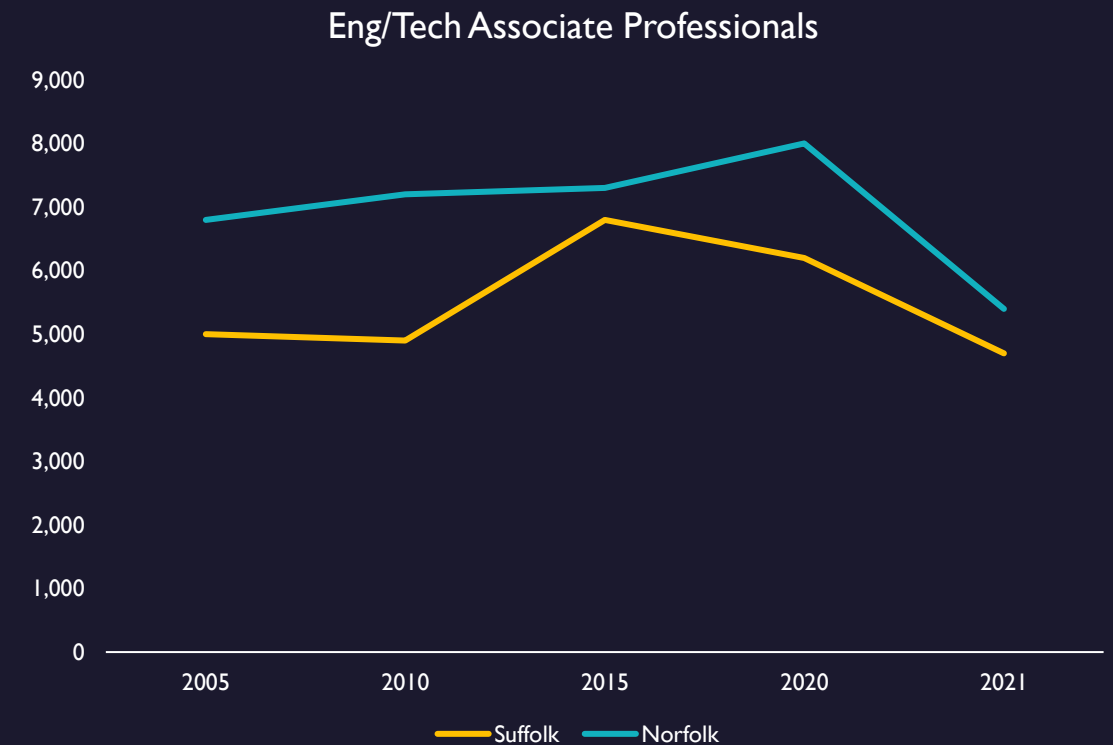
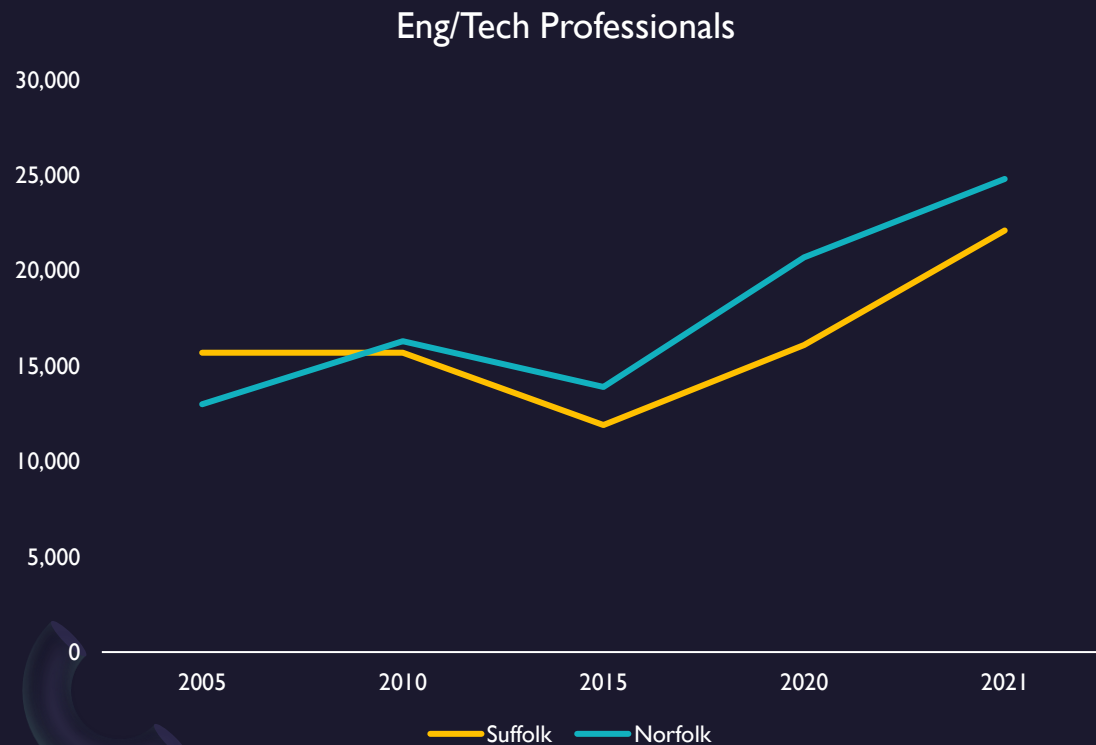


Occupation	East of England	Norfolk and Suffolk	Share in East	Share in Norfolk/ Suffolk	N/S share of the East total
212 Engineering Professionals	51,600	10,320	12.52%	9.1%	20%
311 Science, Engineering and Production Technicians	31,200	5,304	7.57%	4.7%	17%
312 Draughtspersons and Related Arch Technicians	4,200	714	1.02%	0.6%	17%
313 Information Technology Technicians	25,300	4,301	6.14%	3.8%	17%
521 Metal Forming, Welding and Related Trades	5,600	1,736	1.36%	1.5%	31%
522 Metal Mchng, Fitting, Instrument Making Trades	23,600	7,316	5.73%	6.5%	31%
524 Electrical and Electronic Trades	51,300	15,903	12.45%	14.0%	31%
531 Construction and Building Trades	69,900	19,572	16.97%	17.3%	28%
532 Building Finishing Trades	20,500	5,740	4.98%	5.1%	28%
533 Construction and Building Trades Supervisors	3,600	1,008	0.87%	0.9%	28%
812 Plant and Machine Operatives	11,200	3,696	2.72%	3.3%	33%
814 Construction Operatives	11,700	3,861	2.84%	3.4%	33%
821 Road Transport Drivers	85,100	28,083	20.66%	24.8%	33%
822 Mobile Machine Drivers and Operatives	17,200	5,676	4.17%	5.0%	33%
Total for these occupations	412,000	113,230			

Source: NOMIS, 2020

Workforce Trends by SOC Group (1)

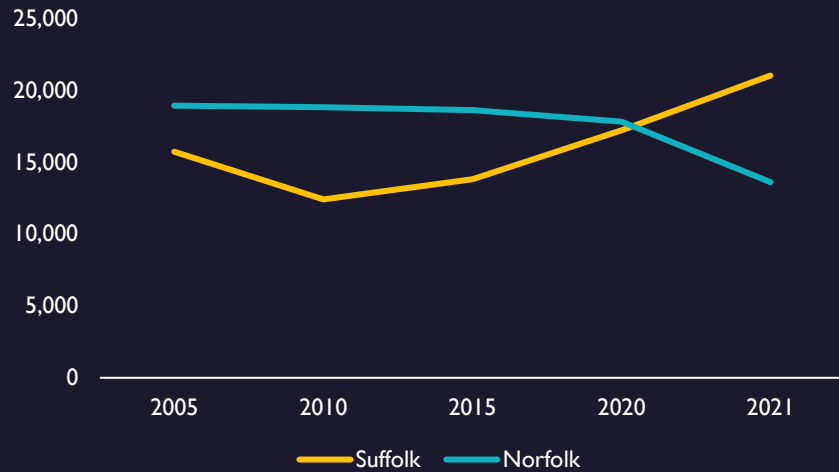
Numbers of Engineering and Technical Professionals have increased over the past fifteen years by around 60%. The much smaller numbers of Associate Professionals have remained largely static or have declined.



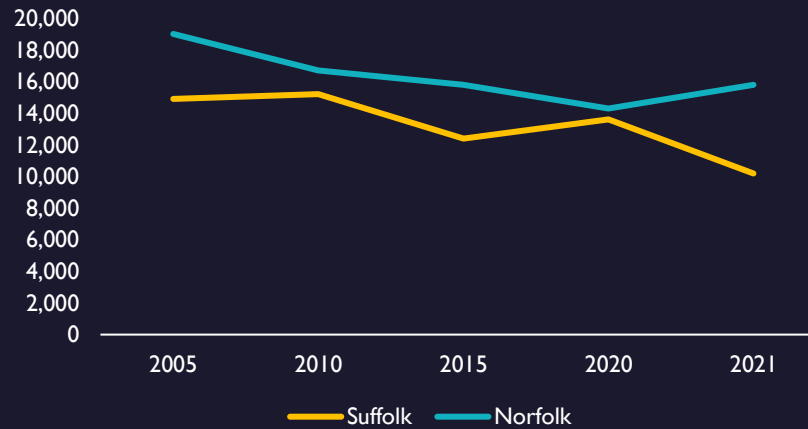
Source: ONS, 2021

Workforce Trends by SOC Group (2)

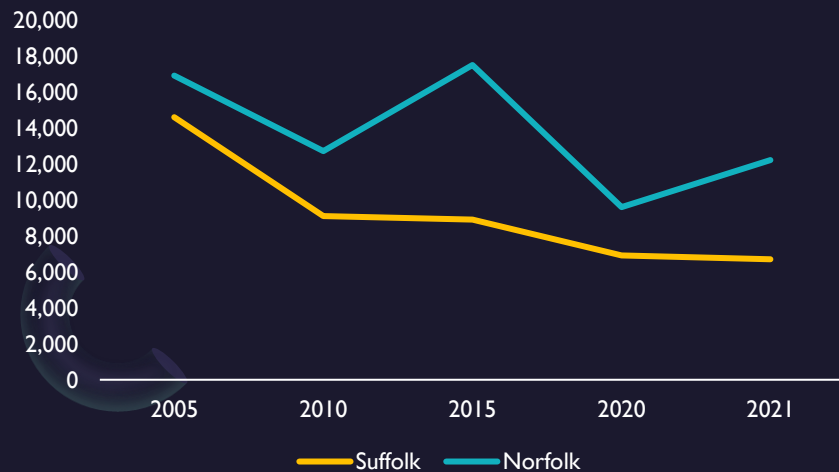
Skilled Trades



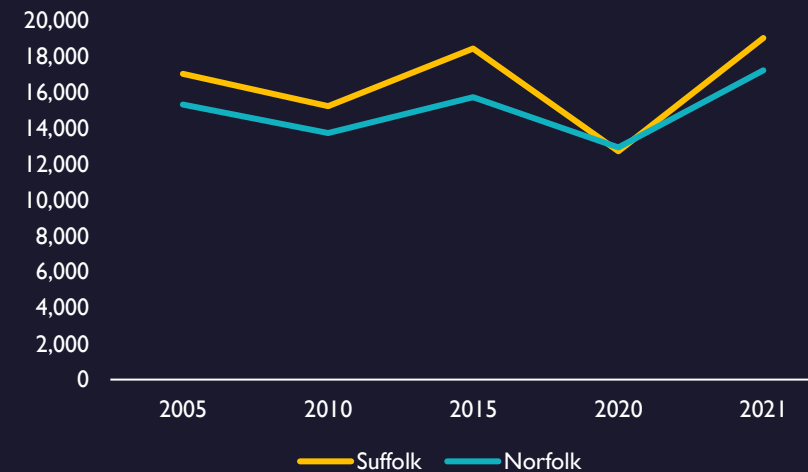
Skilled Construction Trades



Operatives



Transport Drivers

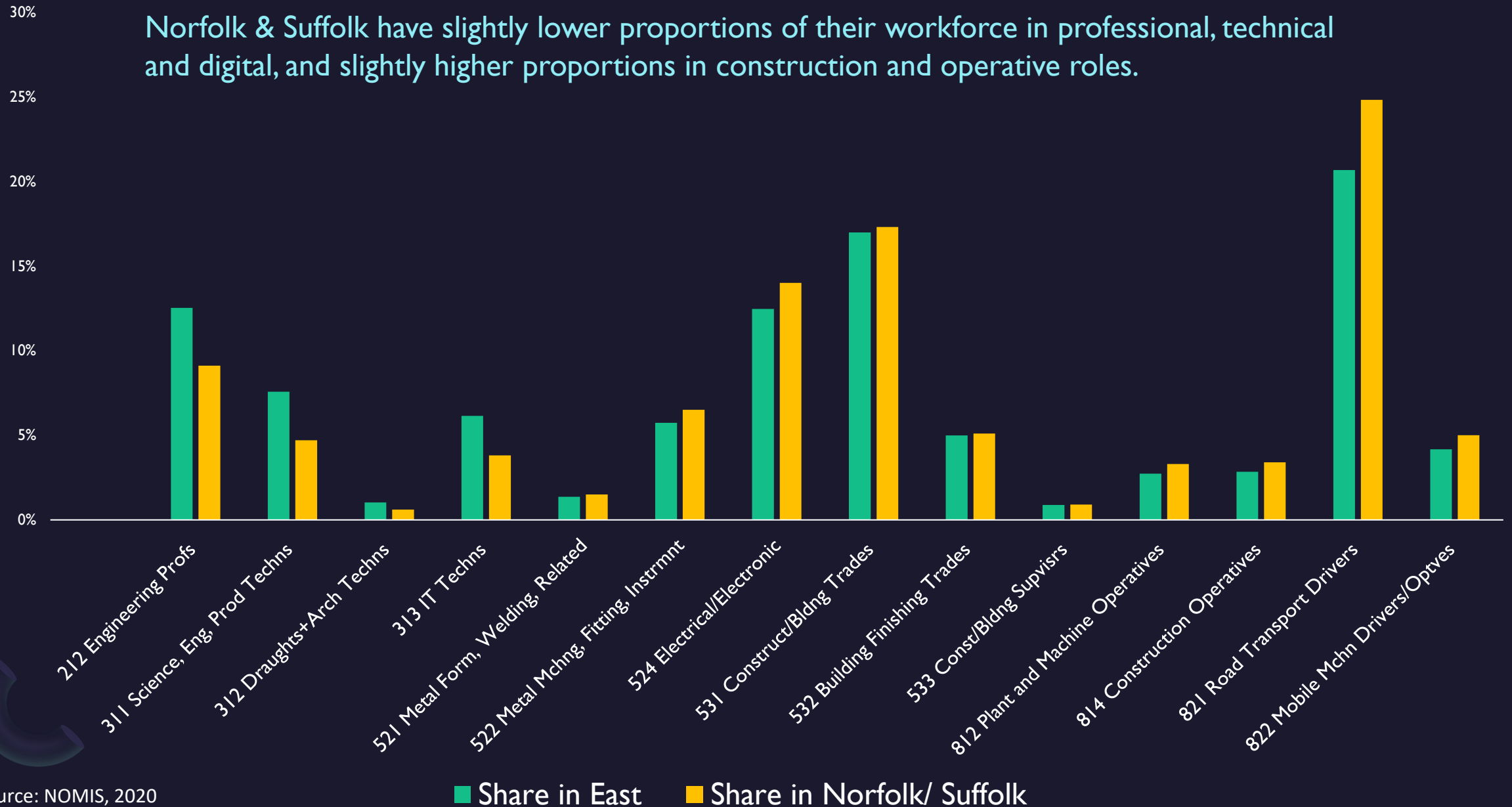


With the exception of skilled trades (+30%) and transport drivers (+12%) in Suffolk the picture for both counties is either static or declining numbers in these SOC roles over the past 15 years.

Source: ONS, 2021

Comparative workforce shares of key technical occupations in the East and Norfolk/Suffolk

Norfolk & Suffolk have slightly lower proportions of their workforce in professional, technical and digital, and slightly higher proportions in construction and operative roles.



Source: NOMIS, 2020



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Employer & Provider Perspectives



Skills Gaps Revisited

Virtually all interviewed employers feel there are significant skills gaps in their existing workforces

These extend from entry-level skills such as basic office computer software skills and customer service abilities through senior management skills to advanced technical skills.

Employers tell us that it is 'difficult to impossible' to find specialist training in the region.

It is likely that the providers will be experiencing similar gaps in their tutor workforces.

Employers are struggling to find training at reasonable cost that will upskill their workforce in skills such as:

- Project management
- Contract management
- Site management
- Digital skills
- BIM/3D design
- Digital twinning
- Modelling – big data
- Logistics skills – supply chain management
- Blockchain
- Robotics awareness and skills
- Net Zero skills (retrofitting, heat pumps, PV solar instalments, windfarm engineers etc)

Skills Shortages Revisited

A majority of employer respondents say they are experiencing shortages of specific skills or roles and that these shortages are becoming worse.

Recruitment conditions also seem to be worsening – employers report 3-9 months to fill technical roles and providers saying that some of their tech roles are taking up to 18 months to fill.

Project Managers
Contract Managers
Surveyors/Planners
Civil/structural engineering
Electrical engineers

Site Managers
Surveyors
Architects
Structural/civil engineers
Steelworkers/erectors
Welders / Fabricators
Plant Operators

Construction Trades
Electricians
Plumbers
Cable jointing/laying
Bricklayers
Carpenters
Groundworkers

PROVIDERS

MAJOR SKILLS SHORTAGES ACROSS
ALMOST ALL PROVIDERS – CANNOT
FIND PEOPLE TO TEACH ...

ONE PROVIDER SAID “EVERY AREA,
EVERY COURSE”.

- Network and AI tech
- Specific coding languages (C++)
- Creative coding professionals /
Software developers / Game engineers
- Green skills
- Construction, carpentry, joinery
- Digital / IT
- Warehousing demand is increasing
- Engineering
- Welders

EMPLOYERS

SHORTAGES REPORTED IN RECRUITMENT FOR VIRTUALLY ALL LEVELS
AND TYPES OF STAFF.

LISTED BY LEVEL AND TYPE NOT BY SEVERITY OF NEED.

- directors
- managerial
- site managers
- surveyors
- architects
- structural/civil engineers
- design
- steelworkers
- electricians
- plumbers
- bricklayers
- carpenters
- groundworkers
- plasterers
- painters
- drivers
- plant operators
- office staff (business administration).

Unprecedented Change

Change has been severe within an extremely short timespan between 2019-2022

In 2019 five of nine business factors were on the positive side of the business climate balance. Only two were having severe impacts.

In 2022 there were no factors at all on the positive side, four were having severe effects and the rest ranged from 'fairly poor' to 'severe'

Selected Business Factors	2019	2022
Brexit trade impacts	Severe	Fairly poor
Brexit employment impacts	Severe	Fairly poor
Economy/Inflation	Very good	Severe
China	Very good	Fairly poor
Energy	Very good	Fairly poor
Work culture	Very good	Fairly poor
Skills supply (competences)	Fairly poor	Severe
Labour supply (numbers)	Fairly poor	Severe
Supply chains	Very good	Severe

Key

Superb	Excellent	Very good	Good	Fairly good	Fairly poor	Poor	Very poor	Severe	Disastrous



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Estimating Future Demand



		2022	2023	2024
212 Engineering Professionals	Predicted 'steady state' numbers	14,477	14,550	14,623
	Available Workforce for Infrastructure Projects	10,858	10,912	10,967
	Additional workforce opportunity	651	764	768
	Training requirement	39	46	46
	Training costs (estimate at current costs)	£117,268	£137,496	£138,184
213 IT Professionals	Predicted 'steady state' numbers	4,132	4,153	4,173
	Available Workforce for Infrastructure Projects	3,099	3,115	3,130
	Additional workforce opportunity	186	218	219
	Training requirement	11	13	13
	Training costs (estimate at current costs)	£33,470	£39,243	£39,439
311 Science, Engineering and Production Technicians	Predicted 'steady state' numbers	8,754	8,798	8,842
	Available Workforce for Infrastructure Projects	6,565	6,598	6,631
	Additional workforce opportunity	394	462	464
	Training requirement	24	28	28
	Training costs (estimate)	£70,906	£83,137	£83,553

Sample Calculations

The chart shows a sample segment of the output from the modelling based on ONS data.



Source: Pye Tait Consulting

Skills needs in numbers

2.5% rising
to c.10%

of the available
workforce between
2022 and 2027 will be
additional demand

Given existing skills gaps and shortages, the impact of the combined infrastructure projects will represent at least an additional workforce demand in specific SOC groups of between 2.5% and 9.5% of the available workforce in the first half of the timeframe under consideration.

A proportion of recruitment may possibly be from the existing workforce but the indications that key skills and job roles are already in extremely short supply meaning that a very high proportion – if not all – of the demand required by infrastructure projects will be additional.

This has significant implications for education and training and particularly the need to ramp up the supply of skilled people.

Relative Demand

As a proportion of the available labour force within each SOC group, demand for the skills associated with different SOC groups peaks in different years.

- Engineering Professionals – demand peaks at over 6% of the available workforce in 2023 and 2024 and again in 2027.
- Science & Technicians – demand peaks at about 7% in 2024 and at 6% in 2027.
- Skilled Trades – demand for skilled trades is at around 7% of the available workforce for the three years 2024 to 2026 with demand peaking at almost 9.5% in 2027.
- Operatives – demand is at 7% in both 2023 and 2024 and again in 2027.

Skills Priorities

Priority skills are those that will be required earliest in the development of the infrastructure projects.

However, while there are some clear needs, the data show that all skill types will be required to some degree at all points in the timeline.

In the three years to the end of 2025, main need will be for skilled trades and construction operatives. For the Top 50 projects professional and technical role needs will be highest in the years between 2022 and 2027.

Skilled trades needs will peak between 2024 and 2027.

Feedback on skills shortages and gaps indicates that industry is already experiencing severe shortages and that those affecting education are possibly even worse. Forthcoming infrastructure projects can only stress this situation further and lead to greater gaps in, and shortages of, skills.

Demand will be significant if all infrastructure projects go ahead – which is entirely likely.

Given the existing skills gaps and shortages, the demand from new infrastructure projects is very likely to be **additional to the current workforce** (which already appears to be inadequate to meet employer demand).

For example: a 9.5% increase in skilled trades demand as predicted for 2027 means a need for over 5,000 people over and above employer needs (already in deficit) and bearing in mind that providers are already at capacity in technical training and are struggle to recruit qualified tutors.

2027 alone will see additional demand for approximately:

- 1,000 engineering professionals
- 1,200 technicians
- 5,000 skilled trades workers
- 3,000 operatives

Quantifying Demand



Quantifying Demand

A total of around **10,000** additional technically-skilled staff by 2027 (additional to the existing – severely overstretched – workforce).

In all, the Top-50 infrastructure projects are predicted to require the filling of at least **43,000** technical job roles over the next fifteen years.

A proportion of these skilled people will require educational and training.

It is impossible to do more than guess at the level of additional demand for training but even a figure of 6% implies a need for 600 more trained people in 2027 (more than double the training requirement predicted by the existing model).

The need for 10,000 more people in 2027 alone represents a little over 10% of the forecast technical workforce of 96,000 people – a very significant, likely additional, demand for skilled employees.



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Key Conclusions



The Known

Leaving the imponderables to one side we know that:

Employers and providers are experiencing severe skills gaps and shortages right now

Around £70bn of new infrastructure work is planned for Norfolk & Suffolk between now and 2037

A high proportion of the employment need will be additional to the existing workforce

Leading to a need for around **43,000 jobs** (10,000 by 2027)

Necessitating a ramp up towards at least

10% more

education and training places in technical skills by 2027



An Urgent Need

This research has shown a serious current shortage of technically-skilled staff and significant current gaps in the technical skills of the existing workforce.

The compelling need for additional numbers of technically-skilled people implies an imperative to expand technical training by at least 10% in the next five years.

The additional technical skills requirement in five years' time will undoubtedly major on even higher levels of cyber and digital skills and will include high degrees of skill in robotics, machine programming, drone usage, digital twinning, lidar-based measuring systems, big data, advanced manufacturing and 3D printing.

Technical Skills Timeline

In order to increase technical skills supply by at least 10% before 2027 it will be necessary to begin the ramp up as soon as possible – e.g. by at least 4% in the relevant technical skills subjects in 2023. The following timeline illustrates a possible progression route towards the target.

